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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/810,387	03/15/2001	Craig M. Carpenter	MI22-1559	8779

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EXAMINER	
ZERVIGON, RUDY	
ART UNIT	**PAPER NUMBER**
1763	

DATE MAILED: 11/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/810,387	CARPENTER ET AL.	
	Examiner	Art Unit	
	Rudy Zervigon	1763	

-- The MAILING DATE of this communication app ars on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29 and 37-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29 and 37-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *All*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 29, 2003 has been entered.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 2, 4-23, 25-29, and 41-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukui et al (USPat. 5,002,928). Fukui teaches a deposition apparatus (Figure 1) for depositing superconducting films (column 2, lines 14-36). Although Fukui does not discuss CVD (chemical vapor deposition) operations, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

Fukui further teaches a deposition chamber (14) defined partly by a chamber body ("solution-escaping inhibitor"; column 5, lines 1-2) including a lid[1] (top tapered portion of 14), where the lid and the chamber body have a similar thickness (see Figure 1)[2]. Fukui further teaches a needle valve / isolation mechanism (6) that seals fluid flow between an outermost (outside chamber 14) and innermost (inside chamber 14) surface of the chamber body (14; column 4, lines 53-59). Fukui further teaches a part of the valve housing (inside surface of 7; Figure 1; column 4; lines 28-31, 36-39, 53-60) between the innermost (inside chamber 14) and outermost surfaces (outside chamber 14) of the chamber body (14; column 4; lines 28-31, 36-39, 53-60). Fukui further teaches the valve body (1) including a portion of the chamber body (14) as at least a part of the valve housing (column 4; lines 28-31, 36-39, 53-60). Fukui further shows, the valve body (1) having an entirety of a seat (inside surface of 7; Figure 1; column 4; lines 28-31, 36-39, 53-60) within the chamber lid[1] above(top tapered portion of 14). Fukui further teaches at least a part of the process chemical inlet (11) to the valve body (1) between the innermost and outermost surfaces of the chamber body, and wherein the chamber body (14) forms a part of a material inlet (11,12). Fukui further teaches the part of the valve housing (fitting in 14 for valve 1) comprised by the portion of the lid is defined by a cylindrical opening (conduit for stem 3; column 4, line 34) in the lid. The valve body (1) further comprising a stem (3) coincident with the central axis of the cylindrical opening at least partially within the cylindrical opening. Fukui further teaches:

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[1] Lid – **5**: something that confines, limits, or suppresses - Merriam-Webster's Collegiate Dictionary - 10th Ed. p.671

[2] Proportions of features in a drawing are not evidence of actual proportions when drawings are not to scale. Because the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. However, the description of the article pictured can be relied on, in combination with the drawings, for what they would reasonably teach one of ordinary skill in the art. (In re Wright,193 USPQ 332 (CCPA 1977). MPEP 2125.

i. The entirety of the valve seat (inside surface of 7; Figure 1) is between an innermost surface of the lid inside the chamber and an outermost surface of the lid outside the chamber (Figure 1)

ii. The part of the valve seat (6/7 interface) comprised by the portion of the lid is defined by a beveled and annular lid surface around a cylindrical opening through the lid, the valve body further comprising a plug (6) complementary to the beveled lid surface - see vertical and slanted tapering at the 6/7 interface in Figure 1

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 3 and 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukui et al (USPat. 5,002,928). Fukui is discussed above. Fukui does not teach that the relative dimensions between Fukui's seat, chamber lid thickness, and chamber lid width as shown by Fukui's Figure 1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Fukui to optimize the relative dimensions of Fukui's seat, chamber lid thickness, and chamber lid width.

Motivation for Fukui to optimize the relative dimensions of Fukui's seat, chamber lid thickness, and chamber lid width is to provide for added structural integrity and/or to accommodate a requisite dimension of the substrate (17, Figure 1). Further, it is well established that changes in apparatus dimensions are within the level of ordinary skill in the art.(Gardner v. TEC Systems, Inc. , 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied , 469 U.S. 830, 225 USPQ

232 (1984); In re Rose , 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04). Further, proportions of features in a drawing are not evidence of actual proportions when drawings are not to scale. Because the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. However, the description of the article pictured can be relied on, in combination with the drawings, for what they would reasonably teach one of ordinary skill in the art. (In re Wright,193 USPQ 332 (CCPA 1977). MPEP 2125.

6. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukui et al (USPat. 5,002,928) in view of Waterfield (USPat. 4,319,737). Fukui is discussed above. However, Fukui does not teach a diaphragm valve. Waterfield teaches a diaphragm valve (Figure 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Fukui to replace his needle valve with Waterfield's diaphragm valve.

Motivation for Fukui to replace his needle valve with Waterfield's diaphragm valve is to provide an alternate and equivalent valve for delivering process fluids.

Response to Arguments

7. Applicant's arguments filed August 29, 2003 have been fully considered but they are not persuasive.

8. Applicant's amendment to claim 3 has withdrawn the original 35 USC 112 2nd paragraph rejection made in the prior action.

9. Applicant states that "Fukui does not disclose a valve body having an entirety of a seat within the chamber lid or body thickness" in support of Applicant's amendment. Applicant's argument is addressed above in the body of the claim rejections.

10. Applicant states that "amended claim 1 sets forth that the entirety of the seat is within the chamber lid or body thickness between the innermost and outermost surfaces of the chamber lid or body" in support of Applicant's amendment. Applicant's argument is addressed above in the body of the claim rejections.

11. In response to Applicant's position that:

"

It is well known to those or ordinal skill that ALD occurs at very low pressures of, for example, less than 10 Torr. Page 5. line 58 describes a pressure for ultrasonic wave sprayer 1 of Fukui of 0.5 to 5 atmosphere. The pressure of 0.5 atmosphere corresponds to 380 Torr with about 760 Torr being atmospheric pressure. Understandably, operation at the low pressures used in ALD requires specialized deposition chambers. No such special requirement are placed upon fence 14 of Fukui for operation down to 380 Torr, Given the structural differences dictated by the large gap between ALD operating pressure and the Fukui operating pressure, those of ordinal skill would not expect the Fukui device to be capable of performing ALD.

"

The Examiner asserts that if Fukui can establish an operating pressure of 0.5 atm (380 Torr – vacuum definition is <760Torr. See Fukui column 5, lines 55-60) then Fukui's "fence" can then indeed support more vacuous operating pressures that are within Applicant's ALD operation. Further, when the structure recited in the reference is substantially identical to that of the claims,

claimed properties or functions are presumed to be inherent (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01).

12. In response to Applicant's position that "No part of fence 14 can be considered in any way integral to ultrasonic wave sprayer 1 or even to needle valve holder 7. Instead, the ultrasonic wave sprayer 1 of Fukui is merely an independent device inside through fence 14....". The Examiner disagrees. Applicant's integrality is clearly displayed in Applicant's Figures 2 and 3, as such, the Examiner believes Fukui also teaches Applicant's integrality.

13.

14. Applicant's position that Fukui "does not disclose any valve body having a seat between the innermost and outermost surfaces of fence 14" is not convincing. As stated above, Fukui teaches a needle valve / isolation mechanism (6) that seals fluid flow between an outermost (outside chamber 14) and innermost (inside chamber 14) surface of the chamber body (14; column 4, lines 53-59). Fukui further teaches a part of the valve housing (inside surface of 7; Figure 1; column 4; lines 28-31, 36-39, 53-60) between the innermost (inside chamber 14) and outermost surfaces (outside chamber 14) of the chamber body (14; column 4; lines 28-31, 36-39, 53-60).

15. Applicant states that Fukui does not teach Applicant's claim 15 limitation of "..the valve body selectively shuts off flow of a process chemical into the chamber, adjusts the flow rate of the chemical into the chamber, or does both.". The Examiner disagrees. Applicant is referred to the body of the claim rejections above. In particular, Fukui's mechanism for said valve body identically performs the application where the valve body (1) selectively shuts off flow of a

process chemical (carried by 9,11) into the chamber (14), and thereby adjusts the flow rate of the chemical into the chamber as described by Fukui (column 4, lines 53-59).

16. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "flow control valve") are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

17. In response to applicant's argument that Fukui does not teach the limitations of claim 17, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). Fukui's apparatus is capable of performing the intended use where the valve position is 50% open when "about 50% of a maximum flow rate" is provided thereby providing a 1:1 ratio between provided flow rate and valve position as taught by Fukui (column 4; lines 53-59). When the forcing pressure equals the chemical supply pressure, the flow is at 100% and the valve is 100% open. When the forcing pressure is larger than the chemical supply pressure, the flow is at 0% and the valve is 0% open.

18. In response to applicant's argument that there is no suggestion to combine the references of Fukui et al (USPat. 5,002,928) in view of Waterfield (USPat. 4,319,737), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of

the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, there is teaching, suggestion, and motivation to replace one common valve type with another common valve type as demonstrated by the knowledge generally available to one of ordinary skill in the art.

Conclusion

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (703) 305-1351. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after final fax phone number for the 1763 art unit is (703) 872-9311. The official before final fax phone number for the 1763 art unit is (703) 872-9310. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (703) 308-0661. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (703) 308-1633.